Self-Employment of Immigrants

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Self-Employment of Immigrants: A Cross-National Study of 17 Western Societies

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Abstract

This study examines the role of immigrants' country of origin, country of destination and combinations thereof (settings or communities) in the likelihood of immigrants being self-employed. I pooled census data from three classic immigrant countries (Australia, Canada and the United States) and labor-force surveys from 14 countries in the European Union for a cross-national data set. Using multilevel techniques, I find that (1) immigrants from non-Christian countries of origin have higher odds of self-employment, (2) higher levels of unemployment among natives increase the odds of self-employment, and (3) self-employment is more frequent among immigrant communities that are small, highly educated and have a longer settlement history.

In the sociological literature, self-employment is considered an important avenue for immigrants' economic mobility (Raijman and Tienda 1999b; Sanders and Nee 1996). Rates of self-employment are generally higher among the foreign-born than among natives. Among white males in the United States in 1980, for example, 16.5 percent of the foreign-born and 11.7 percent of the native-born were self-employed (Borjas 1986). Recent figures in several Western societies suggest an increase in self-employment among immigrants (Waldinger, Aldrich and Ward 1990).

An important issue in the literature on the self-employment of immigrants is the role of the group. Earlier studies have shown that self-employment rates between immigrant groups differ considerably. In 1990, the rate of self-employment for males in the United States, by ethnic group, ranged from 3.2 percent for Laotians and 6.8 percent for Mexicans to 27.9 percent for Koreans and 28.6 percent for Israelis (Fairlie and Meyer 1996). The self-employment experience among Asian immigrant groups, especially Koreans, in the United States has gained much scholarly attention (Kim and Hurh 1985; Kim, Hurh and Fernandez 1989; Light and Bonacich 1988; Yoon 1991). Research has shown that differences between groups remain even after human capital and demographic variables at the individual level have been taken into account (Borjas 1986).

In this article, I pursue this contextual approach to immigrants' self-employment. To begin with, I take the contextual perspective in a new direction by asking to what extent immigrants' self-employment differs between receiving nations. There has been an increasing awareness of the importance of cross-national studies on the economic attainment of immigrants in general (Model and Lapido 1996; Model and Lin 2002; Reitz 1998, 2003; Van Tubergen, Maas and Flap 2004), and several scholars have theorized more specifically about the role of the host

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society in the self-employment opportunities of immigrants (Light 1994; Waldinger, Aldrich and Ward 1990). However, cross-national empirical studies on self-employment among immigrants are rare. The studies that have been conducted have consisted of separate country reports on immigrants' self-employment, which have subsequently been combined and compared (Kloosterman and Rath 2003; Rath 2002; Waldinger, Aldrich and Ward 1990). In this study, I use a cross-national data set on 17 Western countries, which contains individual-level information on self-employment. This provides a more systematic account of what I call "destination" effects: the role of the receiving society in immigrants' self-employment.

Furthermore, I combine this cross-national approach with the earlier perspective on the role of immigrant groups. Integrating these two perspectives results in two different components of immigrant groups, which had not been clearly distinguished before. First, immigrant groups originate from a certain country, and the characteristics of their home country could affect the probability of self-employment irrespective of their destination. When, for example, Korean immigrants show high self-employment rates not only in the United States but also in other societies, yet Mexican immigrants have low rates of self-employment in these destinations, characteristics of their home countries could be advanced to explain these differences. One such characteristic that has been discussed in the literature is the self-employment rate in the country of origin (Yuengert 1995); I call these explanations "origin" effects.

Second, differences between immigrant groups could also indicate what I call "setting" or "community" effects, which refer to properties of the combination of the country of origin and the country of destination. It could be that Korean immigrants show higher rates of self-employment in the United States than Mexicans, but that the opposite is true in other societies. These differences cannot be accounted for by the characteristics of either the country of origin or the country of destination, but seem to arise from a combination of both. Several arguments proposed in the literature, such as the ethnic capital available to an immigrant group in one destination and not in another, could explain these setting effects (Flap, Kumcu and Bulder 2000), as could the relative size of the group (Evans 1989).

The goal of this article is to provide a descriptive and theoretical account of the impact of the country of origin, the country of destination and the setting on the self-employment experience of immigrants. I have developed a series of hypotheses that pertain to origins, destinations and settings. I was able to collect and standardize existing surveys on the self-employment of immigrants in 17 Western countries from1980 through 2002, including Australia, Canada and the United States (well-established destinations) and Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom (newer destinations). The data set provides information on more than 150,000 male immigrants from about 180 origin groups in 17 destinations and in about 850 settings. I controlled for individual-level effects and employed multilevel techniques to test the contextual hypotheses.

Theory and Hypotheses

In order to develop a series of contextual hypotheses that explain the role of origins, destinations and settings, one could rely on theories proposed in the literature. Due to the complex nature of entrepreneurship, a large number of such theories and frameworks have been suggested such as the notions on middleman minorities (Bonacich 1973), blocked mobility (Light 1979), protected markets and ethnic enclaves (Aldrich et al. 1985; Portes and Bach 1985), mixed embeddedness (Kloosterman and Rath 2001), ethnic strategies and interaction theory (Aldrich and Waldinger 1990; Light and Rosenstein 1995), stepladders

(Raijman and Tienda 1999a), and social capital and social networks (Flap, Kumcu and Bulder 2000; Renzulli, Aldrich and Moody 2000). Although these notions highlight different aspects and causes of immigrants' entrepreneurship, none of them provide a comprehensive theoretical perspective that covers the effects of the country of origin, the country of destination and the immigrant setting.

I have used a more general perspective to incorporate these theoretical notions and to explain the effects of origins, destinations and settings. In line with a sociological rational-choice approach (Hechter and Kanazawa 1997), I assume that immigrants rationally reflect on the attractiveness and anticipated costs of entrepreneurship relative to employment as a wage/salary worker. It is argued that "push" and "pull" factors at the macro level determine the decision at the micro level to be self-employed or not (Bates 1997; Clark and Drinkwater 2000; Evans 1989; Maxim 1992).[1] Push factors refer to immigrants' labor-market obstacles, often in the form of employer discrimination, making it less attractive for them to work as a paid employee. Other forces reflect the attractiveness of self-employment and act as pull factors.

The rational-choice push-pull perspective provides the opportunity to unify theoretical approaches by postulating a simple micro assumption and introducing macro conditions that are derived from notions discussed in the literature. For example, the concept of blocked mobility (Light 1979) – i.e., due to discrimination immigrants use self-employment as an alternative route of economic mobility – is used to develop a series of macro-level factors that relate the level of discrimination experienced by immigrants (a push factor) to immigrants' propensity for self-employment. Hence, the rational-choice push-pull perspective does not exclude certain theoretical ideas that can be usefully applied to the origin-destination-setting approach. I discuss several macro-level factors that have been suggested before in the literature (e.g., group size, settlement intentions of the group), but I also propose and test a number of new factors (e.g., religious origin, educational level and heterogeneity of the group, and the unemployment rate of natives).

Origin Effects

The first group of contextual hypotheses pertains to the immigrants' country of origin. One pull factor discussed in the literature is the self-employment rate in the country of origin (Fairlie and Meyer 1996; Yuengert 1995). This idea is informed by more general notions on the role of immigrants' cultural attitudes, values and beliefs in their economic incorporation. Sowell (1996), in particular, maintains that immigrants of culturally similar background have the same economic position across multiple destinations.[2] One aspect of immigrants' home country culture that is transmitted to the country of destination is the practice of self-employment. Sowell (1996:112-13) illustrates this point, "Japan had a long tradition of entrepreneurship…. This economic initiative also became apparent in the histories of Japanese emigrants who settled overseas." More specifically, it is argued that when immigrants come from countries with relatively large self-employment sectors they are socialized into practices that facilitate self-employment, having skills favorable for starting a business. These immigrants are more likely to have self-employed parents, to have been exposed to formal training in small business, or to have been self-employed themselves in their countries of origin. It has been documented in the literature that the children of self-employed parents are more likely to be self-employed themselves (Blau and Duncan 1967; Hout and Rosen 2000), and this tendency increases with earlier experiences of self-employment (Nee, Sanders and Sernau 1994). In view of this, I hypothesize that higher levels of self-employment in the country of origin are directly associated with higher levels of self-employment among immigrants from that country, irrespective of their destination (H1).

Political conditions in the country of origin and their impact on the reason to emigrate can provide a push factor to immigrants. Chiswick (1999) suggested that political suppression and instability in the country of origin might induce people to migrate for reasons other than economic ones. These non-economic migrants are not as prepared as people who move mainly for economic reasons to participate as a salaried worker in the normal labor market. Hence, non-economic immigrants might find it less attractive to work in the normal labor market than economic immigrants. I assume that the level of political suppression in the country of origin is inversely related to the degree of economic incentives to migrate. Therefore, I predict that the more political suppression in the home country, the higher the odds of self-employment in the destination country (H2).

The religious and racial characteristics of the country of origin could be important push factors. The well-known idea of social distance suggests that people might feel more distant towards some groups than towards others and might discriminate more strongly against groups that are less similar to their own (Bogardus 1959; Evans and Kelley 1991; Model and Lin 2002). Because the Western countries I examine in this article are predominantly white and Christian, immigrants from non-Christian and non-white origins experience more discrimination in the labor market than white and Christian groups. Hence, I predict that the odds of self-employment are higher among immigrants from non-Christian countries (H3) and non-white groups (H4).[3]

Destination Effects

Several characteristics of the host society can affect the costs and benefits of immigrants' self-employment. First, opportunities for starting a business depend on policies concerning immigrants. It has been suggested that pull factors in this respect are more favorable in the traditional immigrant countries than in the new immigrant countries in Europe (Light 1994; Waldinger, Aldrich and Ward 1990). It is argued that the labor market in Europe is strongly regulated, which raises obstacles to entrepreneurship among immigrants. By contrast, in classical immigrant countries, like Australia, Canada and the United States, there are virtually no formal barriers to the geographical or economic mobility of immigrants, which facilitates ethnic entrepreneurship (Aldrich and Waldinger 1990). In view of these factors, I predict that the odds of immigrants' self-employment are higher in the classical immigrant countries than in the new immigrant countries (H5).

Immigrants' opportunities for small business can vary from country to country because of market conditions. Razin and Langlois (1996) argue that a high rate of native self-employment in an area reflects ample opportunities in the small-business economy, which are open to immigrants as well. Market conditions in these areas induce immigrants to start a business, creating an important pull factor. This argument would predict that the odds of self-employment among immigrants increase with the self-employment rates of natives in the receiving society (H6).

Conditions in the receiving nation can also push immigrants out of the normal labor market. One such factor is the unemployment rate among natives. According to ideas on queuing processes (Model and Lapido 1996; Thurow 1975), immigrants are given second preference to natives as employees. This hierarchy might be especially harmful to immigrants in times of high unemployment because in such times they are the first to become unemployed and they experience the strongest decline in wages. Hence, it is attractive for immigrants in countries with a high unemployment rate among natives to start a small business. I therefore predict that the higher the unemployment rate of natives in the receiving nation, the greater the odds of self-employment among immigrants (H7).

Setting Effects

The third group of contextual effects refers to the combination of origin and destination, which I call the immigrant setting or community. A push factor frequently discussed in the literature, which refers to the setting, is the difficulty some groups have in "transferring" their skills (Aldrich and Waldinger 1990; Sanders and Nee 1996). These are communities that have moved from developing economies to more advanced nations only to find that their skills, most notably educational qualifications, are not valued by the native population at the same level as similar skills among immigrants from more developed nations (Borjas 1987; Jasso and Rosenzweig 1990). Hence, people who move from less to more economically-advanced countries are pushed out of the normal labor market to a greater extent than people from wealthier nations. It is therefore hypothesized that the more economically advanced the origin country relative to the destination country, the lower the odds of self-employment (H8).

The immigrant group's destination-language skills can also constitute a pull factor. Evans (1989) suggests that the lower the language skills of the immigrants in one's own group, the more attractive it is to become an entrepreneur. She assumes that immigrants with few language skills do not perform well in the open labor market and may find it profitable to work for co-ethnics. "The ethnic capitalist can profit by hiring workers, paying them more than the broader market offers but – at least initially – less than majority group workers with equivalent skills earn in the broader market" (Evans 1989:952). As a proxy for the communities' language skills, I use the similarity between the official languages in the countries of origin and destination, assuming better language skills when these are similar. Hence, I predict that groups with the same official language in both countries are less likely to be self-employed (H9).

The heterogeneity of the immigrant community provides a pull factor for two reasons. First, groups with a diverse composition have greater access to resources and information than homogeneous groups (Granovetter 1973; Renzulli, Aldrich and Moody 2000). To run a business, immigrants need to have sufficient resources and information about market conditions and business opportunities. Second, highly diverse groups probably have a higher niche diversity. Lieberson (1980) has suggested that the lack of niche diversity in an immigrant group is an obstacle for immigrants in that group to become self-employed. When a group is composed of members with the same skills, valuable for the same kind of small business, the competition among members of that group for the consumer market is high, which makes it less attractive to be an entrepreneur. To examine these ideas about group diversity, I focus on educational heterogeneity. I predict that the more diverse the immigrant group in terms of education, the higher the odds of self-employment (H10).

The size of the immigrant group relative to the native population is also a setting factor. However, there is some disagreement in the literature about whether group size has a positive or a negative effect on the odds of self-employment. Evans (1989) argues that ethnic entrepreneurs have lower information costs regarding the consumption preferences of their own group, making it more attractive to become self-employed when the own group is larger. In addition, immigrants from larger groups find easier access to start-up capital in their ethnic community (Yuengert 1995). These notions support the positive pull factors of group size and would lead one to expect a positive relationship between group size and self-employment (H11a).

Alternately, it has been argued that supplying goods exclusively for one's own ethnic community is a weak basis for running a small business (Aldrich and Waldinger 1990). Even for larger immigrant groups, the clientele base is usually quite small. Producing goods for the non-ethnic market is therefore considered crucial for the continuity of ethnic firms. The presence of a sizable group of co-ethnics in the environment increases the level of competition by co-ethnics and, in turn, limits the attractiveness of starting a business. These ideas support the "negative pull" factors of group size: it is less attractive for immigrants of larger groups to be self-

employed. In addition, group size can also provide a "negative push" factor. Razin and Langlois (1996) argue that immigrants from sizable groups can find ample opportunities as normal salaried workers in ethnic enclaves and, therefore, need not use self-employment as an alternative strategy for economic mobility. In view of these arguments, one would expect that group size has a negative effect on the likelihood of immigrants' self-employment (H11b).

Another setting factor that can affect self-employment is the settlement intention of the immigrant group, although different arguments about this have been proposed. Some groups, so-called "sojourners," intend a short stay, while other groups want to settle permanently in the receiving nation. Bonacich (1973) maintains that self-employment is an attractive (pull) option for sojourners, because it does not tie them to the destination country for a long time. Bonacich lists several sojourning groups that specialize in transportable occupations such as shoemakers, goldsmiths and restaurant owners. Hence, this argument predicts that immigrant groups that intend a short stay have higher odds of self-employment (H12a). However, Aldrich and Waldinger (1990) argue that self-employment is riskier than a wage/salary job and, hence, *less* attractive for sojourners than for immigrants who plan to settle permanently in a host society. This would lead one to expect that sojourners are less likely to be self-employed (H12b).

A final pull factor I consider is the amount of social or "ethnic" capital available in the immigrant group (Flap, Kumcu and Bulder 2000; Portes and Bach 1985). Immigrants who belong to communities with high financial and human capital can more easily start a business. In addition, groups with high ethnic capital also have a better consumer market for the goods and services provided by the ethnic entrepreneur. Boyd (1991) suggests that the percentage of the group that is employed is indicative of the ethnic capital of that group. In view of this, it is hypothesized that the higher the proportion of employed immigrants in a group, the higher the percentage of self-employed members of that group (H13a).

However, there is a potential drawback to measuring ethnic capital by the percentage of employment in a group: percent employment is also indicative of the amount of discrimination experienced by an immigrant group. Groups that meet less discrimination will have a higher proportion of their members participating in the labor market. In these groups, immigrants can find jobs as normal wage/salary workers more easily. If this interpretation is true, one would predict that the higher the percentage employed, the lower the likelihood of self-employment (H13b).

I therefore also examine another indicator of ethnic capital: the group's average education. This measure was introduced by Borjas' (1992) study on the relationship between ethnic capital and intergenerational mobility. Because immigrants have usually completed their education by the time they migrate, education is less associated with discrimination in the destination country. Following Borjas (1992), I assume that a higher average education in a group is associated with a higher amount of ethnic capital. In more highly educated groups, self-employment is especially attractive because of the availability of start-up capital in the community and the better consumer base among their own ethnic group. Therefore, I predict that the higher the education of the group, the higher the odds of self-employment (H14).

Data

I collected and standardized existing surveys containing individual-level information on the labor-market status of immigrants. The surveys were pooled in a single cross-national data set, the International File of Immigration Surveys (IFIS) (Van Tubergen 2004). Information on the economic position of immigrants in Australia was obtained from the 1981 Census (Australian Bureau of Statistics 1981).[4] For Canada, I used the 1991 and 1996 3 percent public-use census (Statistics Canada 1991, 1996). For the United States, I made use of the 1980 and

1990 censuses, 1 percent file (United States Census Bureau 1980, 1990). Information on the European countries came from the European Union Labour Force Survey (EULFS). This consists of annual labor-force surveys of EU countries, which were standardized by Eurostat (2002). Because the survey designs and measurements in these surveys are much alike, EULFS provides reliable cross-national data (Eurostat 1998). The surveys were conducted in 14 EU member states from 1992 through 2002.

The analysis is restricted to employed male immigrants between the ages of 25 and 54. Immigrants are defined as individuals born outside the country of residence. Because the sample sizes for the censuses of Australia, Canada and the United States were much larger than the samples of the new immigrant countries. I restricted the number of respondents from large immigrant groups in the traditional immigrant countries (such as Mexicans in the United States) to a maximum of 2,000 per survey. The cross-national data set consists of 17 destination countries, 179 origin groups, 840 combinations of origins and destinations (i.e., settings), and 159,844 immigrants.

Dependent and Independent Variables

The dependent variable is the log-odds of an immigrant being self-employed vs. a wage/salary employee or (unpaid) family worker. Self-employed persons include those with or without employees, in their own businesses. I did not detect any problems involving a lack of comparability between the surveys used in this study. The Appendix provides the original coding and description of self-employment status from these surveys. The independent variables are related to origins, destinations, settings and individuals.[5]

Self-employment in origin country: I computed the percentage of self-employed in the total labor-force in the country of origin. This information was obtained from the International Labour Office (ILO) and refers to various years during the 1980-1990 period (ILO 1980-1990).

Political suppression: I used information collected by Freedom House on political rights and civil liberties in the countries of origin (Karatnycky and Piano 2002). Political rights ranged from 1 (free and fair elections, power for opposition parties) to 7 (oppressive regime, civil war). Civil liberties ranged from 1 (freedom of expression and religion, free economic activity) to 7 (no religious freedom, political terror, no free association). I used the sum score for each country (2 to 14) and computed averages for the 1972-1980 period.

Christian origin: I included a dummy variable for countries of origin that have a predominantly Christian population, using predominantly non-Christian countries as a reference. Those countries with more than 50 percent Christian adherents during the 1960–1980 period were assumed to be predominantly Christian. This information was obtained from Brierley (1997).

White origin: I used the racial self-identification question in the 1 percent file of the 1990 Census of the United States to obtain figures on the racial composition of countries around the world. The proportion of immigrants from a specific country who identified themselves as white was used as a measure of the proportion of whites in that country.

Immigration country: I set up a dummy to indicate whether destinations were a traditional immigration country or not. Two other destination variables were computed using aggregate information from IFIS, both varying per year and referring to native males between 25 and 54 years old.

Self-employment natives: This is the percentage of self-employed individuals among employed natives.

Unemployment natives: The percentage of unemployed natives.

Economic development (ratio): I used gross domestic product (GDP) per capita as a measure of economic development and calculated GDP ratios for the country of origin relative to the destination country. GDP was measured in constant dollars per capita for 1980 and was obtained from OECD (2000).

Official language: This is represented by a dummy variable indicating whether the official language of the country of origin was the same as the official language of the destination country, based on the language situation at the end of the 20th century (Grimes 2000). An "official" language is the language used in schools and formal settings. Other community variables were computed by aggregating individual-level information in IFIS.

Relative group size: The size of an immigrant group relative to the total population of the host country.

Educational diversity: The heterogeneity of the education of the group was computed with the Herfindahl-index (see e.g., Iannaconne 1991), calculated by squaring the proportion of immigrants at each level of education belonging to a group, and then summing the resulting numbers. Because education is coded in three categories at the individual level, the index ranges from [1 - ($1.0^2 + .0^2 + .0^2$) =] 0, or perfect concentration, to [1 - ($.33^2 + .33^2 + .33^2$) =] .67, indicating maximum diversity.

Employment group: The percentage of all male members in the group who are between 25 and 54 years old and either self-employed or a wage/salary worker.

Mean level of education group: I computed the mean educational level of immigrant groups based on the three-category classification of education, ranging from low to high.

Settlement Intentions

Because no direct measures of the settlement intentions of groups are available for any of the 840 groups included in the data set, I relied on three proxy variables computed by aggregating individual-level information. Probably the most direct measure I constructed is the average length of stay for group members, assuming that the higher the average length of stay, the longer the settlement intentions of that group. Two more indirect measures are geographic distance and sex imbalance. I assume that immigrants who move a longer distance are more likely to settle permanently (Borjas 1987), and groups that have recently arrived and are less likely to stay for a long period have a more uneven sex balance (either more male or more female immigrants) than older, more established groups. The three variables were:

Length of stay group: the percentage of an immigrant group that had stayed in the destination country more than 10 years.

Geographic distance: the distance in kilometers between the capital cities of the origin and destination countries based on the so-called "great circle distance method." (Byers 2002)

Sex imbalance: the balance between the number of males and the number of females in the group. The variable ranges from 0 (perfect male-female balance) to 1 (perfect imbalance).

Controls

I included individual-level human-capital and demographic variables to control for composition effects. Some surveys contain precise information on all relevant individual-level variables, whereas others have cruder measures or do not contain all variables. The European Union Labour Force Survey (EULFS), for example, does not provide precise information on duration of residence and schooling and has no information on language skills. Therefore, I had to make some concessions to make the variables cross-nationally comparable.

Age: measured in years or by estimating midpoints for surveys using age categories.

Duration of residence: I constructed three categories: 0–5 years, 6–10 years and 11 years or more.

Education: in accordance with the classification of educational level in the EULFS, I used three categories for education: low (primary education and first stage of secondary education), middle (second stage of secondary education), and high (higher education). Surveys using measures of schooling (years of full-time education) were recoded using information on the years needed to obtain certain educational levels. Information for specific countries was obtained from ISCED-97 (OECD 1999).

Marital status: married individuals contrasted with all others. Table 1 presents descriptive information on the variables included in the analysis.

A potential problem in contextual analysis is the high correlation between macro-level variables. In order to see if this applied to the present study, I calculated the bivariate Pearson correlations at the setting level (not presented).[6] It appears that the correlations are generally not higher than .40. However, the association between political suppression in the country of origin and relative economic development is substantial ($r = -.59$). Overall, there is not a priori reason to doubt the results on grounds of multicollinearity between the contextual variables.

Methods

I made use of multilevel techniques suited to the structure of the data. Most of the previous contextual research on self-employment of immigrants has estimated the impact of macro-level factors using ordinary logit regression, in which the error terms at the macro level are neglected and the standard errors of the parameters are underestimated (Raudenbush and Bryk 2002; Snijders and Bosker 1999). As a result, support for macro-level hypotheses can be unjustified.

Using multilevel techniques provides a more appropriate means of incorporating and testing micro and macro effects. At the "lowest" or micro level, self-employment is affected by individual characteristics such as education. Immigrants are then nested in both their country of origin and their country of destination. These macro-level components affect the odds of self-employment at the same level, so the multilevel structure is non-hierarchical.

Table 1: Means and Standard Deviations of Variables

	Range	Mean	S.D.
Dependent variable			
Self-employed	0/1	.15	.36
Independent variables			
Origin			
Self-employment rate (%)	1.93-86.23	26.39	15.62
Political suppression	2-14	8.34	3.89
Christian origin	0/1	.57	.50
White (%)	0-100	49.38	39.28
Destination			
Classic immigration country	0/1	.18	.39
Self-employment (%), native reference group	10.9-39.2	18.28	7.20
Unemployment rate (%), native reference group	1.4-10.8	5.78	2.56
Setting			
GDP per capita origin/ destination	.01-5.66	.61	.72
Official language	0/1	.15	.36
Relative group size (%)	0-9.71	.154	.59
Educational heterogeneity	0-.67	.50	.16
Mean duration of stay group (% 10+ years)	0-100	55.97	24.40
Sex imbalance group	0-1	.19	.29
Geographic distance (per 1000 km)	.17-19.84	5.34	4.71
Employment group (%)	0-100	68.32	17.27
Mean educational level group	1-3	2.20	.42
Control variables			
Age	25-54	38.44	8.17
Duration of residence			
0-5 years	0/1	.19	.39
6-10 years	0/1	.19	.39
10+ years	0/1	.62	.48
Education			
Lower	0/1	.34	.47
Middle	0/1	.35	.48
High	0/1	.32	.47
Married	0/1	.76	.43

Instead, immigrants are contained within a cross-classification of their country of origin and country of destination, and the data are therefore most appropriately treated with "cross-classified" multilevel models (Raudenbush and Bryk 2002:373-98; Snijders and Bosker 1999:155-65). In these models, there is a random main effect of the country of origin, a random main effect of the country of destination, and a random "immigrant effect" at the individual level (i.e., the deviation of immigrants' score from the setting mean). Because the variance of settings is tapped by the variance of origins and the variance of destinations, it is not independently assessed; however, setting effects are estimated at the appropriate origin-by-destination level. I made use of Markov Chain Monte Carlo (MCMC) estimation procedures from the software program MlwiN (Browne 2002).

Because one destination-level variable (classic vis-à-vis new immigrant country) is time-invariant and two destination-level variables (the self-employment and unemployment rates among natives) vary over time, I estimated two different models. In one model, I made destinations time-invariant, which resulted in 17 destination cases. In this model, I treated all variables that pertain to the host society as time-invariant and included the average country scores for the two time-variant variables. In a second model, I made destinations time-variant, resulting in 126 "destination-year" cases. Whereas the first model is more suited to testing time-invariant destination variables, the second is a better test of time-variant destination variables.

Results

To give a descriptive account of the role of contextual effects, Table 2 presents the percentage of self-employed immigrants by origin, destination and setting. Because such information could, of course, not be presented for all 840 settings included in the data set, I illustrate how five well-known origin groups (Chinese, Italians, Filipinos, Poles and Turks) fare in the 17 destination countries.

Table 2 shows large differences among origin countries. The mean self-employment rate of all immigrants is 14.9. The percentage of self-employed among the Chinese is 24.5, almost 10 percentage points higher. Filipinos have a much lower rate (4.8). The self-employment figures of the three other groups fall in between (Italians, 19.4 percent; Poles, 11.4 percent; Turks, 10.8 percent).

There are also pronounced differences in immigrants' self-employment between destination countries. Of all immigrants observed in the data set in Austria, about 7.6 percent were self-employed. I also find low self-employment rates among immigrants in Germany (8.7 percent) and Luxembourg (8.2 percent), while self-employment rates are considerably higher in Ireland (26.9 percent), Spain (25.6 percent), and Portugal (25.2 percent). It is, perhaps, important to note that in most countries, immigrants' self-employment rates are lower than those of natives in the same age category. In only six of the countries studied (Belgium, Canada, Portugal, Spain, the United Kingdom and the United States) are the self-employment figures of immigrants higher than those of natives. This finding is in conflict with the literature, which suggests that immigrants generally have higher self-employment rates than natives (e.g., Borjas 1986).

Table 2 also provides some clues for the role of setting effects. Compare, for example, the self-employment figures for Turkish immigrants in Austria and Greece. In Austria, Turks have a self-employment rate of 4 percent, which is below the mean self-employment rate of Turkish immigrants in general (10.8 percent) and also below the mean of all immigrants in Austria (7.6 percent). In contrast, in Greece, Turks have a very high self-employment rate (35.1 percent), far above their general rate and above the overall pattern observed among

Table 2: Self-Employment Percentage of Selected Origin Groups by Destination Country

	Origin							
Destination	**China**	**Italy**	**Philippines**	**Poland**	**Turkey**	**Other**	**All**	**Natives**
Australia	30.1	26.8	2.3	12.6	8.2	14.5	14.9	19.3
Austria	.	14.4	.	7.8	4.0	8.3	7.6	14.0
Belgium	.	16.1	.	.	.	18.1	17.7	17.0
Canada	20.5	20.4	5.7	15.4	14.2	16.6	16.3	15.2
Denmark	.	.	.	.	.	11.6	11.6	12.2
Finland	.	.	.	.	.	11.9	13.9	21.1
France	.	21.0	.	.	14.4	12.3	12.9	14.6
Germany	.	15.5	.	7.9	5.2	9.0	8.7	10.9
Greece	.	.	.	8.8	35.1	16.8	17.8	39.2
Ireland	.	42.0	.	.	.	26.5	26.9	27.9
Luxembourg	.	12.1	.	.	.	7.4	8.2	11.5
Netherlands	.	23.8	.	.	8.7	11.2	11.3	13.2
Portugal	.	.	.	.	.	23.7	25.2	23.9
Spain	.	.	.	.	.	24.5	25.6	22.6
Sweden	.	.	.	.	.	14.6	15.8	18.8
UK	27.0	27.1	.	.	.	20.6	20.9	16.8
United States	16.1	18.7	5.5	12.4	18.4	13.7	13.6	12.5
Mean	24.5	19.4	4.8	11.4	10.8	15.0	14.9	17.0

. = N < 200

Statistics are for male immigrants, 25-54 years old.

Table 3: Variance Components From Cross-Classified Multilevel Logistic Regression Models With Random Intercepts

	Destinations time invariant		Destinations time variant	
	Variance component	S.E.	Variance component	S.E.
Country of origin	.377	(.058)	.376	(.058)
Country of destination	.227	(.107)	.234	(.033)
Individual	3.290		3.290	
Total	3.894		3.900	

Statistics are for male immigrants, 24-54 years old.

immigrants in Greece (17.8 percent). Apparently, the specific situation of Turks in Austria and Greece determines their deviance from the pattern expected from general origin and destination effects.

Another way to answer the question about how macro units differ from one another is to compute variance components. Table 3 shows the variance components of multilevel logistic regression models with random intercepts for country of origin and country of destination. In one model, destinations are treated as time invariant, in the alternative model they vary over time. Note that only random intercepts are included; explanatory variables are excluded (i.e., "empty models"). It is furthermore important to emphasize that the logistic distribution for the level-one residual implies a variance of $\pi^2 = 3.29$ (Snijders and Bosker 1999:224), and that no random variance of the setting interactions (i.e., origin by destination combination) is included. The table shows that, in the models in which destinations are treated as time constant, the variance is .377 among origins and .227 among destinations. Hence, the variance at the macro level as a proportion of the total variance is ([.377 + .227] / [.377 + .227 + 3.29]) .16. This is also the correlation between self-employment outcomes of two (randomly chosen) immigrants who are from the same country of origin and who live in the same country of destination.

Decomposing the total macro variation into two macro components results in a proportion of the total variation that is due to the country of origin, .10 (time invariant model), and a proportion that is due to the country of destination, .06. Because there are 179 origin countries in the analysis and only 17 destinations, which are also quite homogenous, the larger variation between origins is not surprising. Including more (non-western) destination countries would probably increase the variance observed among destinations. The overall conclusion, however, is that contextual factors play an important role in the self-employment experience of immigrants.

To examine these contextual effects, we need to rely on theoretical notions. I constructed two cross-classified multilevel logistic-regression models of self-employment to test the hypotheses. The results are presented in Table 4.[7] Model 1 presents the findings when destinations are treated as time-invariant. Model 2 gives the results for the time-varying analyses (suitable for testing time-variant destination variables). I discuss the results of the hypotheses, give examples to illustrate their meaning, and compare my findings with results found in earlier studies.

From the perspective of the country of origin, I predicted that the self-employment rate in the home country would have a positive effect on the odds of self-employment (H1). The analysis does not support this hypothesis. Model 1 shows that the relationship is positive, but not significant. Yuengert (1995), however, found a significantly positive relationship for immigrant groups in the United States, but his analysis was criticized for ignoring a group-

Table 4: Cross-Classified Multilevel Logistic Regression of Self-Employment in 17 Western Countries 1980-2002

	Destinations time-invariant		Destinations time-variant	
	Model 1		Model 2	
Constant	-4.871	(.159)	-5.615	(.181)
Origin				
Self-employment rate (%)	.001	(.004)	.004	(.003)
Political suppression	-.012	(.014)	-.010	(.012)
Predominantly Christian origin	-.312**	(.097)	-.322**	(.109)
White (%)	.006**	(.002)	.007**	(.001)
Destination				
Classic immigration country	-.274	(.160)	-.192	(.128)
Self-employment (%), native reference group	.009	(.009)	.029**	(.004)
Unemployment (%), native reference group	.021	(.012)	.058**	(.007)
Setting				
GDP per capita origin/destination	.055	(.044)	.203**	(.042)
Official language	-.010	(.027)	.035	(.031)
Educational heterogeneity	.367**	(.080)	.348**	(.070)
Relative group size (%)	-.080**	(.009)	-.082**	(.009)
Duration of stay group (% 10+ years)	.003**	(.001)	.003**	(.001)
Sex imbalance	.320**	(.097)	.375**	(.100)
Geographic distance (per 1000 km)	.020**	(.003)	.019**	(.003)
Employment group (%)	-.009**	(.001)	-.008**	(.001)
Mean educational level group	.341**	(.054)	.325**	(.034)
Individual				
Age	.029**	(.001)	.030**	(.001)
Duration of stay				
0-5 years	ref.		ref.	
6-10 years	.411**	(.026)	.406**	(.026)
10+ years	.546**	(.022)	.545**	(.022)
Education				
Low	ref.		ref.	
Middle	.181**	(.020)	.186**	(.019)
High	.118**	(.022)	.123**	(.022)
Married	.102**	(.019)	.101**	(.019)
Number of observations				
Destination		17		126
Origin		179		179
Setting		840		840
Individual		159,844		159,844

Note: Standard errors in parentheses.
*$p < .05$ **$p < .01$ (two-tailed tests).

level component of the error term in his individual-level equation. In a replication, using more appropriate techniques, Fairlie and Meyer (1996) could not find such a significant effect for immigrant groups in the United States.

I further hypothesized that political suppression in the origin country would have a positive effect on the self-employment of immigrants (H2). The analysis does not confirm this hypothesis: the level of political suppression in the sending nation has no significant effect on the odds of self-employment at the destination.

Two characteristics of the country of origin do play a significant role. First, as predicted (H3), the analysis finds that immigrants from origin countries that are predominantly Christian are less often self-employed than those from mainly non-Christian countries. The odds of self-employment among immigrants from Christian societies are $(1 - e^{-.312})$ or 27 percent lower than among immigrants from non-Christian nations. Inspecting the raw data (not presented) reveals that self-employment rates among immigrants from the Philippines (5 percent) and Mexico (6 percent) – two Catholic origins – are considerably lower than those from Pakistan (26 percent) and Israel (29 percent), which are predominantly Muslim and Jewish, respectively.

I also hypothesized that non-white groups would have higher odds of self-employment than white groups (H4). However, the opposite pattern was found: the percentage of whites in the origin country appears to have a significantly positive impact on the odds of self-employment.

In regard to the role of receiving nations, we have to look at Model 1 for time-invariant variables and Model 2 for time-variant variables. I hypothesized that self-employment rates of immigrants in classic immigrant countries are higher than in the new European immigrant countries (H5). The results do not support this idea. Model 1 shows that self-employment figures for immigrants in traditional immigrant countries are not significantly different from those of similar immigrants in new immigrant nations.

I do find significant outcomes for the time-variant variables in Model 2. It was hypothesized that when natives have a high self-employment rate, immigrants would have a similarly high self-employment rate (H6). Indeed, Model 2 shows a direct relationship between the percentage of self-employed natives in a specific country at a specific time and the odds of self-employment among immigrants in that country and at that time. The magnitude of the effect is .029 in Model 2, showing that for 1 percentage point increase in the self-employment rate of natives, the expected odds of immigrants' self-employment increases by 2.9 percent. An illustration of this process can be found in Greece, where self-employment rates in the period 1992-2002 dropped among the native population from 41.2 percent to 37 percent, and among the immigrant population from 23 percent to 13 percent (figures not presented). Similar contextual results were obtained by the within-country analysis of Razin and Langlois (1996) on Canadian data. They found that the odds of self-employment for an immigrant group in a metropolitan area increased with the rate of self-employment of the total population in that area.

I also hypothesized that the percentage of unemployed natives in a specific country in a specific year had a positive effect on the odds of self-employment among immigrants in that country at that time (H7). The analysis supports this prediction. The relationship in Model 2 is positive and significant. One illustration of this effect is found in the United Kingdom, where the unemployment rate of native males decreased in the period 1992-2002, from 10 percent to 4 percent, and the self-employment rate of male immigrants decreased accordingly, from 23 percent to 19 percent.

The third group of contextual effects relates to the specific combination of origin and destination, i.e. settings or communities. It was suggested that the more economically advanced the country of origin relative to the destination country, the lower the odds of self-employment (H8). In view of this, I examined the role of GDP per capita in the country of origin

relative to the destination country. Unexpectedly, in Model 1 the GDP ratio has no effect; and in Model 2, I find a significant positive effect on self-employment. This contradicts the hypothesis.

Another setting factor is the average destination-language proficiency of the group. I predicted that communities with a better command of the destination language would have lower rates of self-employment (H9). However, the analysis shows that groups, who have been exposed in their home country to the receiving nation's official language and are assumed to speak the language fluently, do not appear to have lower self-employment rates than groups who have not been exposed. This finding is inconsistent with that of Evans (1989), who found that in Australia, the greater the percentage of adults in an immigrant group who are fluent in the host country's language, the less likely group members are to be entrepreneurs. One explanation for not finding such an effect is that I was unable to control for language proficiency at the individual level. Earlier research found that immigrants less proficient in the destination language have lower probabilities of being self-employed (Fairlie and Meyer 1996; Lofstrom 2002). Hence, not taking into account the individual language skills of immigrants probably suppresses the contextual effect.

It was further predicted that communities with a diverse educational composition would have higher rates of self-employment (H10). The analysis confirms this suggestion. The effect of the group's educational heterogeneity on self-employment is positive and significant. The magnitude of the effect is .367 in the time-invariant model, showing that the expected odds of self-employment among immigrants in perfectly heterogeneous communities are 28 percent higher than among immigrants in groups with concentrated educational qualifications (i.e., $1 - e^{.367 \times .67}$).

The size of the immigrant group relative to the native population is also a setting factor. Whereas several authors have argued that group size has a positive effect on the odds of self-employment (H11a), others have maintained that the effect is negative instead (H11b). I find evidence for the latter idea: the analysis shows a negative relationship between the size of an immigrant community relative to the total population and the odds of self-employment. Earlier findings of within-country studies on the role of group size have been mixed. Evans (1989) found a positive impact from the size of immigrant groups in Australia on the odds of entrepreneurship. Based on the fraction of Hispanic individuals in a SMSA's population in the United States, Borjas (1986) reported a positive impact on the odds of self-employment in three Hispanic groups (Mexicans, Cubans and other Hispanics). Yuengert (1995), however, found that self-employment rates among Chinese, Mexicans and Cubans in the United States are no higher in cities with large concentrations of immigrants from the same group. Clark and Drinkwater (2000) found a negative relationship between the odds of self-employment and the proportion of co-ethnics in small regions in England and Wales. Because this study considers more immigrant groups (about 840) than previous studies and over a wider range of nations, I feel confident in concluding that the effect of group size on self-employment is negative, at least when observed on a national level.

I formulated two alternative ideas about the settlement history and intentions of immigrant groups. According to one idea, advanced by Bonacich (1973), groups that intend a short stay (sojourners) are more likely to become entrepreneurs than groups that intend to settle permanently (H12a). Others, including Aldrich and Waldinger (1990), have suggested instead that sojourners are less likely to become entrepreneurs (H12b). The findings are more in favor of this latter hypothesis. The most direct indicator of settlement intentions, the average length of stay for a group, shows that communities with a higher proportion of immigrants who have remained more than 10 years have higher self-employment figures. Another, more indirect indicator of settlement intentions, geographic distance between the country of origin and country of destination, also supports the idea that groups that plan to stay in the destination country for a considerable period of time have a greater likelihood of self-employment. My

analysis shows that groups who have traveled a longer distance have higher self-employment rates. However, the third indicator of settlement intentions, the sex balance, is positive; groups with either many males or many females intend a short settlement history and have a larger propensity for self-employment. Overall, findings indicate that immigrants who plan to stay for a longer period are more likely to be entrepreneurs.

A final way of understanding community effects is to consider the group's ethnic capital. Boyd (1991) proposed measuring ethnic capital in terms of the groups' percentage of employment, predicting a positive relationship with self-employment (H13a). However, I argued that this could at the same time measure the degree of discrimination experienced by the group, predicting a negative relationship instead (H13b). The analysis confirms my alternative interpretation of this variable: the employment rate of the immigrant community has a negative effect on self-employment. To examine the idea of ethnic capital more directly, I followed Borjas (1992) and examined a more unequivocal indicator of ethnic capital: the mean educational level of the immigrant group. This variable has the predicted positive impact on self-employment (H14), indicating that the higher the educational skills of the community to which immigrants belong, the higher the likelihood of self-employment. Note that this relationship is controlled for the individual's education, indicating a pure contextual effect.

Conclusions

Previous research has found large differences in the rates of self-employment among immigrant groups, suggesting that social context plays an important role. I pursued this contextual approach and proposed three groups of contextual effects: "origin" effects, which indicate the role of sending nations notwithstanding immigrants' destinations; "destination" effects, reflecting the impact of receiving nations irrespective of immigrants' origins; and "setting" or "community" effects, which pertain to the specific combination of origin and destination. I used a sociological rational-choice perspective on self-employment to understand these three groups of contextual factors. In this perspective, macro-level factors determine the decisions of immigrants at the micro level whether to be self-employed or a paid worker. I relied on notions in the literature that suggest contextual factors that push immigrants out of the normal labor market as paid workers, as well as other contextual factors that provide a pull factor for self-employment. I used cross-national data on self-employment among male immigrants in 17 Western countries, from 179 origin countries, and in 840 settings. Applying cross-classified logistic multilevel techniques and controlling for relevant individual-level variables, this study shows that the probability of immigrants to be self-employed depends on their origins, destinations and settings. To a certain extent, I was able to understand the role of these contexts from a rational-choice push-pull perspective, but some of the findings were unexpected. Four general conclusions can be drawn from this study.

First, arguments about immigrants' opportunities for self-employment in traditional immigrant countries are probably overstated. In Australia, Canada and the United States about 15 percent of the employed male immigrants have their own businesses, which is about the average of immigrants in European countries. Multivariate analysis does not show a significant difference either. Hence, it is not the distinction between the "old" and "new" immigrant countries that is relevant cross-nationally. In line with this conclusion, Min and Bozorgmehr (2003) remark that although the government of the United States tried to promote minority business, it has failed to achieve that goal. They list a number of ways in which the U.S. government hinders the activities of small business owners. Instead of contrasting traditional and new immigrating countries, my study shows that the differences between European countries are more substantial. Whereas in some European countries

more than 25 percent of the immigrants are self-employed (e.g., Ireland, Portugal and Spain), in other countries less than 10 percent of the immigrants are self-employed (e.g., Austria, Germany and Luxembourg). This study shows that the cross-national variation in the self-employment experience of immigrants concurs with the variation in self-employment of natives and the unemployment rate in a country. The self-employment rate of immigrants tends to adjust to the self-employment rate of natives, reflecting the general opportunity structure for entrepreneurship in the receiving economy, and it increases with the unemployment rate, reflecting stronger discrimination of immigrants in the labor market.

Second, I find evidence against the idea that immigrants who are unfavorably selected in terms of human capital – and for that reason have difficulty finding employment in the normal labor market – use self-employment as an alternative strategy of economic mobility. It does not matter whether political suppression in the sending nation is high or low, indicating that the reasons for migration do not play a role in the decision to start a business. Thus, there is evidence to refute the suggestion that people, who move for predominantly political reasons and who were assumed to be less-well prepared to participate in the labor market as employees, are more likely to become entrepreneurs than people who move for economic reasons. My study also disproves the suggestion that immigrants from countries with relatively large self-employment sectors are socialized into practices that facilitate self-employment in the destination country. This finding does not support the idea that immigrants' cultural background and the specific skills to become an entrepreneur influence their economic standing across multiple destinations, as argued by Sowell (1996). In addition, my results show that people who move from developing nations to more economically advanced societies are *less* likely to be self-employed than people who move from more advanced societies. This opposes the idea that immigrant communities that have difficulties "transferring" their human skills are more likely to be self-employed. One explanation for these unexpected findings is that less human capital makes immigrants not only less successful in finding work as a wage/salary earner, but also limits their mobility as ethnic entrepreneurs. Possibly, immigrants who migrated for non-economic reasons, have country-specific expertise in entrepreneurship, and have difficulty transferring their skills are more likely to start a business in the host country, but lack the human and financial capital to maintain such a business (Bates 1997). One way further research could address this issue is to disentangle two processes not considered here: factors involved in starting a business and determinants of maintaining a business. It is assumed that those with unfavourable human capital more often start a business, but less often succeed in maintaining their businesses.

Third, this study shows that immigrants use self-employment as an alternative strategy for economic mobility when opportunities to work in the labor market as a wage/salary earner are blocked due to discrimination. I find that higher unemployment rates among natives in a certain country increase the likelihood of immigrants' self-employment in that country. Thus, in countries with a high unemployment rate among natives, immigrant employees are pushed out of the labor market and become entrepreneurs. Economic mobility in the open economy is blocked in times of high unemployment, and during these times, immigrants use self-employment as an alternative. The same pattern is observed at the community level. The unemployment rate of an immigrant group's total active population in a certain country has a positive impact on the likelihood of self-employment in that group. The amount of discrimination experienced by a community pushes immigrants of that community towards self-employment. Furthermore, immigrants from predominantly non-Christian countries of origin tend to be more often self-employed than immigrants from Christian nations. This supports the idea that non-Christian immigrant groups, who are more culturally distant from the predominantly Christian host countries, experience more discrimination in the labor market. Surprisingly, however, this study finds that the percentage of whites in the country

of origin has a *positive* impact on the rate of self-employment. This finding does not support the idea that people from predominantly white countries would experience less discrimination in the labor market and would therefore have lower rates of self-employment. One possible explanation is invoked by the idea of "consumer discrimination," which argues that white consumers, who make up the majority of the countries examined, tend to prefer buying from whites and dislike purchasing goods and services from non-whites (Borjas and Bronars 1989). It is possible that non-white immigrants experience discrimination from both employers (pushing them into self-employment) and consumers (making it more difficult to be self-employed), and that the latter process is stronger than the former.

Fourth, this study provides insight in the role of social capital, suggesting that co-ethnics can both help and hinder each other in starting and maintaining a business. The results show a negative relationship between the relative size of an ethnic community and the likelihood of self-employment. This finding indicates that competition between co-ethnics for small markets is stronger in more sizable groups, which makes self-employment in larger groups more difficult. In a similar way I find that co-ethnics hinder each other in homogenous groups. Communities composed of members with largely the same educational level show lower rates of self-employment than more diverse groups. In more diverse communities, the level of competition between co-ethnics is smaller because members are looking for different kinds of jobs. Furthermore, co-ethnics help each other in heterogeneous groups, because the educational heterogeneity of the ethnic community facilitates the availability of resources and information important for starting and maintaining a business. Finally, it appears that immigrants who belong to communities with a higher average education generally have higher self-employment rates. In these ethnic communities, more financial and human capital is shared among immigrants, facilitating the start and maintenance of a business than in other communities with less financial and human capital.

Notes

1. It has become standard practice in the literature about self-employment among immigrants to study persons who are employed and not to compare self-employment with nonemployment. It is important to emphasize that it is also assumed in the theoretical approach in this study that nonemployment is not a third option for immigrants. In addition, I do not distinguish factors that determine the decision to become entrepreneur vis-à-vis factors of maintaining a business.

2. I am indebted to a reviewer of *Social Forces* for bringing this study to my attention.

3. Note that theoretically, these are setting effects; for one would predict the opposite for immigrants in non-Christian, non-white destinations. However, I treat these as origin effects because the destinations in our study are all predominantly white and Christian.

4. Unfortunately, more recent census data for Australia could not be included in the cross-national file, due to restrictions on access and usage of these data outside Australia.

5. When the value of a macro-level variable was missing for a certain country, I used the average score of the country's region (e.g., "Central America," "Western Europe") instead. I conducted additional analyses (not presented here), in which dummy variables indicated whether information was directly obtained or estimated. These analyses did not show a significant effect and were omitted from the analysis presented here.

6. Because some variables are at a nominal level, Pearson's *r* is less adequate. However, using other measures of association, such as Cramer's *V*, I obtained similar results. Further computations, not presented here, show that correlations differ only slightly when measured at the origin and destination levels.

7. I did not inspect changes in the effects of macro-level variables and changes in variance components after adding micro- and macro-level variables, nor did I inspect deviance statistics. This is because, in multilevel models with dichotomous outcomes, the residual level-one variance is fixed, and the coefficients of the macro-level variables as well as the variance at the macro level tend to increase after micro-level variables with strong effects have been included (Snijders and Bosker 1999). The multilevel models are appropriate, however, for testing macro-level hypotheses.

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Appendix. Classification of Self-Employment

Survey	Variable [Label]	Self-employed	Wage/salary workers, family workers, etc.
EULFS	Stapro [Professional status]	– self-employed with employees – self-employed without employees	– employee – family worker
US 1980 Census	Class [Class of worker]	– self-employed workers – employee of own corporation	– private wage and salary workers – federal government workers – state government workers – unpaid family workers
US 1990 Census	Class [Class of worker]	– self-employed in own not incorporated business, professional practice, or farm – self-employed in own incorporated business, professional practice or farm	– employee of a private for profit company or business or of an individual, for wages, salary, commissions – employee of a private not-for-profit, tax-exempt, or charitable organization – local government employee – state government employee – federal government employee – working without pay in family business or farm
Canada 1991 Census	COWP [Class of worker]	– paid workers (self-employed incorporated) – self-employed without paid help unincorporated – self-employed with paid help unincorporated	– paid workers (wage and salary earners) and unpaid family workers
Canada 1996 Census	COWP [Class of worker]	– paid workers (self-employed incorporated without paid help) – paid workers (self-employed incorporated with paid help) – self-employed without paid help unincorporated – self-employed with paid help unincorporated	– paid workers (wage and salary earners) and unpaid family workers
Australia 1981 Census	STC01 [Occupational status]	– self-employed – employer*	– in the labor force: employed (wage, salary earners) – helper, unpaid

* = a person who operates his or her own unincorporated economic enterprise or engages independently in a profession or trade.